CSc Practical Worksheet 2(Solution)

A'S

Paper 1

Topic: System Software (Chapter 7)

1 A game program is written which can be either interpreted or compiled. The table below shows five statements about the use of interpreters and compilers.

Tick (✓) to show whether the statement refers to an interpreter or to a compiler.

Statement	Interpreter	Compiler
This translator creates an executable file		Y
When this translator encounters a syntax error, game execution halts	Y	
The translator analyses and checks each line just before executing it	Y	
This translator will produce faster execution of the game program		Y
Use of this translator makes it more difficult for the user to modify the code of the game		Y

2 **(i)** Explain why a computer needs an operating system.

- **The hardware is unusable without an OS // hides complexity of hardware from user**
- **Acts as an interface / controls communications between user and hardware / hardware and software**

(ii) Give **two** key management tasks carried out by an operating system.

1 Process / task / resource management

2 Main memory management

3 One management task carried out by an operating system is to provide a user interface.

Describe **two** more of these management tasks.

1 **Main memory management**
Memory protection to ensure that two programs do not try to use the same space
Use of virtual memory
Deciding which processes need to be in main memory at any one time
Location of processes within the memory
By example, e.g. when process terminates, memory is made available

2 **File / secondary storage management**
Maintains directory structures

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Provides file naming conventions

Controls access

4 A programmer is writing a program that includes code from a program library.

(a) Describe **two** benefits to the programmer of using one or more library routines.

1 The code is already written (So the programmer is not starting over again) which saves time

2 The code will have been used by many people. So it should be already thoroughly tested // relatively error-free

(b) The programmer decides to use a Dynamic Link Library (DLL) file.

(i) Describe **two** benefits of using DLL files.

1 The executable file is smaller / the executable does not contain all the library routines DLL files are only loaded into memory when required.

2 A single DLL file can be made available to several application programs. Saving space in memory / easing the pressure on memory

(ii) State **one** drawback of using DLL files.

The executable code is not self-contained the DLL file(s) needed to be included at run time.

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